

BIOME

NOT TO BE TAKEN FROM THE ROOM
POUR LA CONSULTATION SUR PLACE

Canada

National Museum of Natural Sciences

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EDITORIAL

The word **biome** is a deceptively simple term for a complex and still evolving concept, but for convenience we define it as a representative ecosystem. For instance, a coniferous forest has a distinctive natural combination of plants and animals which differs greatly from that which exists in a desert, tundra or tropical forest. Much specialized research is involved in gathering and interpreting information about such ecosystems. Thus **BIOME** is perhaps a suitable title for the "newspaper" of an organization whose primary functions are to study the organisms of ecosystems and inform Canadians about their magnificent natural heritage.

The Museum is undergoing an exciting period of change. The relocation of the National Museum of Man, with which we currently share the Victoria Memorial Museum Building, will enable us to greatly expand our exhibit galleries, and planning for this has already begun. We are also planning for a centralized building complex for our staff and collections, which are currently housed in several locations throughout Ottawa. The improved management and storage of the collections is of vital importance, for they act as "libraries" of past and present knowledge of the natural history of Canada and many other regions of the world; collections are in fact the essence of this or any other museum. Field surveys and donations are continually increasing their size and they now total 3.5 million specimens or specimen lots; over 100,000 specimens or specimen lots were acquired in one year!

Future issues of **BIOME** will bring you news of these developments, both as concerns public aspects of the Museum and the "behind the scenes" activities from which we derive the knowledge that we present to you in our exhibits, publications and programs. The current issue is meant to provide a retrospective look at our institution, a point of departure to enable you to share our enthusiasm as we begin a period of growth and renewal. We hope that you will — because it is you that we are working for.

A prehistoric extravaganza at the Museum!
Story on page 4.

How we Began

Few visitors to the National Museum of Natural Sciences are aware that its origins date back to 1842 — or that its first humble home was part of a Montreal warehouse!

In 1842, William Logan became the first director of the Geological Survey of Canada. A man of wide interests, Logan encouraged his staff to collect not only rocks and minerals, but also fossils, plants, animals and Indian artifacts. These collections were first displayed in the Geological Survey's warehouse headquarters in Montreal. They became increas-

ingly larger and more comprehensive as the Survey's activities expanded in the years following Confederation.

In 1880, the Survey and its Museum were moved to Ottawa and housed in the Clarendon, a former hotel. This eventually became too small for the staff and collections, and in 1905 construction was begun on a building which was completed in 1911 and named the "Victoria Memorial Museum". Structural problems resulted in the removal of the tower that surmounted the main entrance in 1916 — giving the building a slightly decapitated appearance!

The Geological Survey had moved into the unfinished building in 1910, followed a year later by the National Gallery of Canada. By this time the Museum staff was organized into a Biology Division and an Anthropology Division. The Museum building also contained the House of Commons and the Senate for four years following the fire that destroyed the Centre Block of the Parliament Buildings in 1916; many important decisions by the Canadian Government during the First World War were made in the "Victoria Memorial Museum".

In 1927, the Museum was officially named the National Museum of Canada. In 1950, it was transferred from the Geological Survey to what is now the Department of Indian and Northern Affairs, although the Survey remained in the Museum building until 1959. The National Gallery was also relocated in 1960.

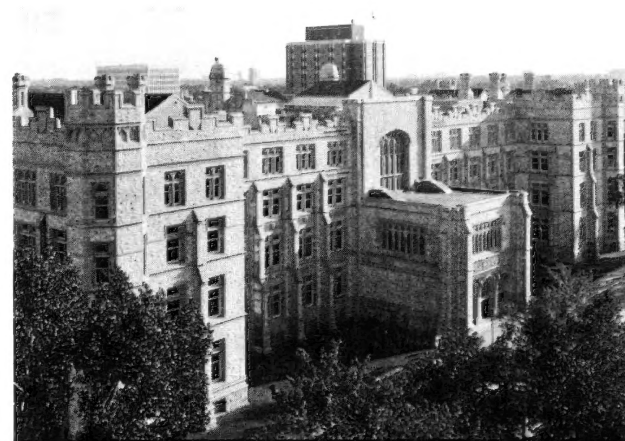
Natural History and Human History branches of the Museum were formed in 1956. In 1964, it was transferred to the Department of the Secretary of State. A Science and Technology Branch was added in 1966, and in 1968 the National Museums of Canada Corporation was created out of

the three branches and the National Gallery. A third transfer took place in 1981, when responsibility for the National Museums was assumed by the Ministry of Communications.

The Victoria Memorial Museum Building was closed to the public in 1969 due to a major renovation program. It was reopened in 1974 with two of the four floors completed. New galleries were added in the following years, the most recent, *Plant Life*, opening to the public in 1981.



First Home in Ottawa: the Clarendon Hotel, at the corner of George and Sussex streets.



The Victoria Memorial Museum Building, at the corner of Metcalfe and McLeod Streets. Because of structural problems, the tower that surmounted the main entrance had to be removed in 1916.



The Father of Canadian Geology and Founder of the National Museum

Sir William Edmund Logan (1798–1875), first director of the Geological Survey of Canada, truly deserves the title Father of Canadian Geology — and of the original National Museum of Canada.

A wealthy bachelor, he was totally devoted to his work, laboring in his office from morning until night, and even longer when he was in the field. During the 27 years that he directed the Survey, he built up a highly dedicated organization that laid the foundation of our geological knowledge of Canada and made significant contributions to other

areas of natural history.

Although he was wealthy, Logan was unconcerned about his own comfort, living in a meagerly furnished room that also served as his office in the Survey headquarters. He was even less concerned about his personal appearance, which made for some interesting situations. On one occasion he was in the process of being bodily thrown out of the upper (1st class) saloon of a steamboat when a passenger who knew him arrived and explained to the steward that what appeared to be a tramp was in fact an eminent scientist!

Tragedy in the Arctic

The Canadian Arctic Expedition (1913–1918) was one of the most remarkable scientific achievements of the early years of this century. A multi-disciplinary scientific exploration involving several departments, including the Geological Survey of Canada and its Museum, it gathered information about areas that were then largely unstudied. So vast was the accumulated knowledge that the published reports eventually grew to a total of 14 volumes.

However, this remarkable achievement had a tragic aspect. The Expedition was divided into two parties: the Northern Party, led by V. Stefansson, which was to work on and around the Beaufort Sea, and the Southern Party, led by R.M. Anderson, whose area of study was along the Central Arctic Coast. Two small ships were assigned to the Southern Party, which included most of the Survey and Museum employees, and one larger ship, the *Karluk*, to the Northern Party. The *Karluk* became trapped in drifting pack ice north of Cape Barrow, Alaska, drifted 1,600 km

west and finally began to sink, crushed by the heavy pack ice. The crew and remaining Party members (four had gone ashore earlier, including Stefansson and the renowned anthropologist Diamond Jenness) abandoned ship, and a desperate journey began

across the ice to Herald Island and then to Wrangel Island. A final dash to Siberia was made by the valiant captain of the *Karluk*, and a rescue party raced back. However, of the 28 men trapped on the *Karluk*, only a dozen had survived.



Scientific staff of the Canadian Arctic Expedition at Nome, Alaska, in 1913. Standing in the front row are R.M. Anderson (holding hat) and V. Stefansson (wearing bowler hat). Diamond Jenness is third from right in the back row.

A Look “Behind the Scenes”

BIOME

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As mentioned in our editorial, collections are the essence of a museum, and those of the National Museum of Natural Sciences are among the best natural history collections in the world:

The *Botany Division's* National Herbarium dates back to 1882 and is regularly used by Canadian botanists and those from other countries. There are nearly 500,000 vascular plants, 200,000 bryophytes, 82,000 lichens, and 21,500 algae. The lichen and bryophyte collections are the largest in Canada.

The *Vertebrate Zoology Division* is one of the primary contributors to information on vertebrate distribution in Canada. Its collections include 50,000 mammals, 100,000 birds, 250,000 fishes and 85,000 reptiles and amphibians.

Collections in the *Invertebrate Zoology Division* are among the oldest in the Museum, dating

back to 1861. They are also the largest, and include 2,600,000 molluscs, 600,000 crustaceans, and 650,000 other invertebrates.

There are 37,000 vertebrate fossils in the *Paleobiology Division*, primarily dinosaurs of the Cretaceous Period in Alberta and Pleistocene mammals from the Yukon. The Division also maintains pollen and fungi collections in order to determine past climatic conditions: there is a collection of 2,400 slides of fossil fungi, a reference pollen collection representing 8,000 species of modern plants, and an exchange pollen collection made up of 2,000 species of plants.

The *Mineral Sciences Division* maintains collections of 20,000 minerals, 2,500 gemstones and 10,000 rocks and ores. These collections have excellent worldwide representation and include about one-third of the mineral species known to science.



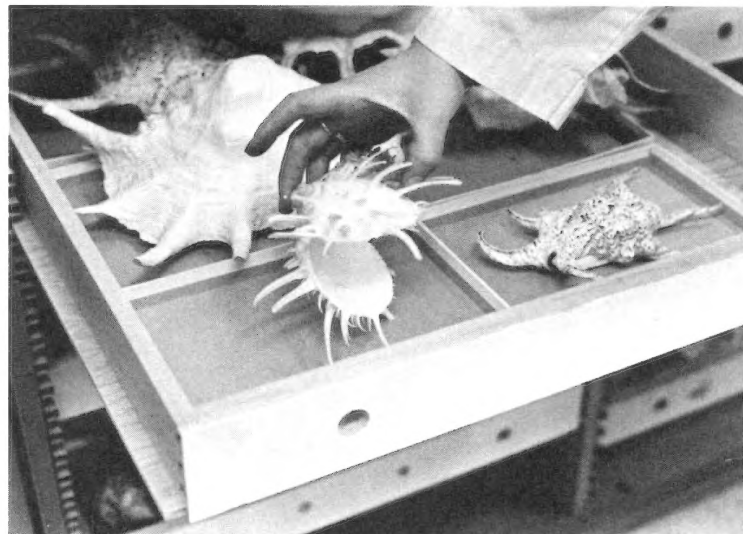
Much specialized research is involved in gathering and interpreting information about Canada's natural heritage.

A special service unit, the *Zoarchaeological Identification Centre*, covers both human and natural history and is the most comprehensive laboratory of its kind in North America. It can provide interpretive reports about human diet in the past as well as those of predatory animals, and maintains a reference collection of more than 3,000 complete animal skeletons to aid in the identification process.

Research in all of these groups is being actively supported by the Museum, both through its staff and through associated scientists from outside organizations. Studies and surveys are gradually increasing our knowledge of the country's natural heritage, and throughout the years the Museum has produced hundreds of scientific publications dealing with the natural sciences. In 1981, the Museum received authorization to begin planning a comprehensive

Biological Survey of Canada that will systematically explore the fauna and flora of this country. As its pilot program, the Survey is developing and coordinating national initiatives in entomology on behalf of the Museum and the Entomological Society of Canada.

Other units are responsible for popularizing this accumulated knowledge. Their personnel produce and circulate travelling exhibits, prepare the lifelike models and mounted specimens seen in the galleries, operate a school loans service, and present interpretive programs for school groups and other Museum visitors. An information service originates and distributes various interpretive publications in response to thousands of enquiries received annually, and publicizes the various events presented at the Museum. There is also an active volunteer program.



Collections in the *Invertebrate Zoology Division* are the largest in the Museum, and include 2,600,000 molluscs.

A World To Discover

There's a world to discover in the seven permanent exhibit galleries of the National Museum of Natural Sciences.



Step into *The Earth* and peer through "telescopes" at some of the stars, nebulae, planets and galaxies that share our universe. See how oceans were formed and how they would



Animal Life explores the evolutionary threads that bind all of the animals of the world together; a unique visitor-operated "Tree of Life" traces the development of the animal kingdom from its beginnings more than 500 million years ago. Learn to know your phylum from your genus!



Dall's sheep in Kluane National Park, Yukon Territory. Each of the 16 dioramas in the *Mammals in Canada* gallery is a "duplicate" of a specific place, exactly as you would see it if you were there.

appear to the deepest of all divers. How volcanoes erupt — and why.



Then travel back 75 million years in the "Dinosaur Court" of the *Life Through The Ages* gallery and see the mounted skeleton of *Daspletosaurus*. When he was alive, this monster was 9 m long, 5 m tall and weighed over a tonne!



Birds in Canada contains many lifelike dioramas showing birds characteristic to various regions of Canada — from the Atlantic to the Pacific and from the Arctic to the grasslands. Photographic panels located alongside each diorama permit easy identification — although catching sight of some of the better-camouflaged birds is sometimes a bit of a challenge!



More dioramas in *Mammals in Canada* depict events such as migration or defense against predators, and show us the fiercest predator of all, the masked shrew. This deadly hunter frequently eats twice its own weight in a single day! Then again, it weighs less than 4 g.



Plant Life features an entire panorama of living specimens as the unifying framework linking colorful exhibits.

A Pioneer Dinosaur Hunter

1885-1981

Dr. Charles Motram Sternberg, famous dinosaur "hunter" and researcher, collected most of the impressive specimens displayed in the Museum's *Life Through The Ages* gallery.

During a career that spanned more than 60 years, Dr. Sternberg discovered the remains of hundreds of dinosaurs, mainly in the badlands of southern Alberta. He identified and described 32 different species, 17 new genera and 3 families, and produced approximately 60 scientific papers and articles — as well as one of the world's most important dinosaur collections.

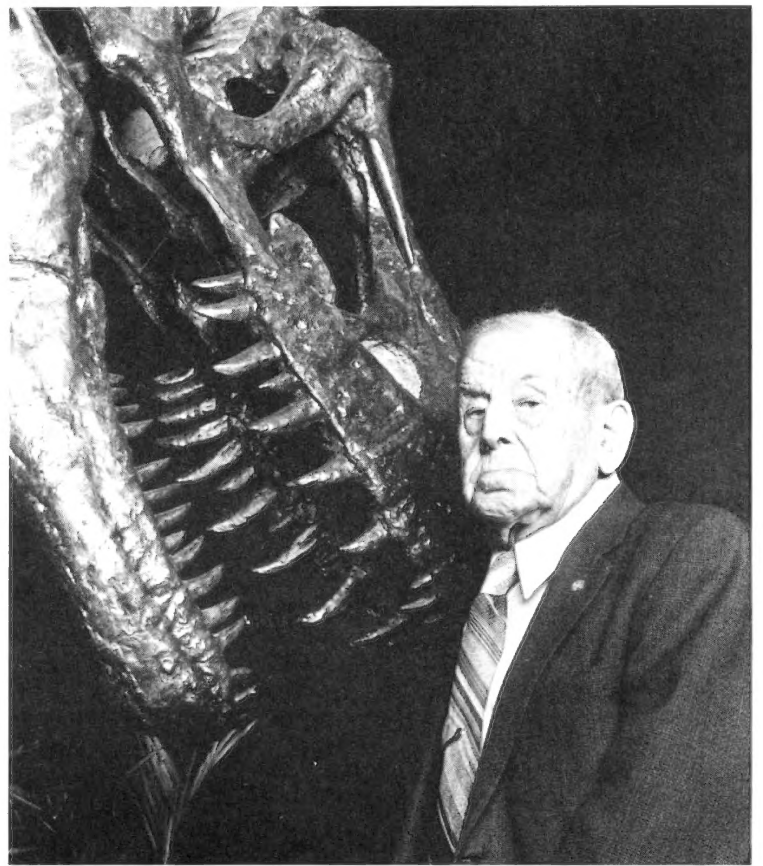
"Charlie", as he was known to his friends and colleagues, is still a folk hero to long-term residents of southern Alberta. He spent most of his summers there searching for fossils; each year brought forth new specimens and the Museum collections grew in variety and importance. In fact, Dr. Sternberg probably collected more dinosaur fossils than any other man in the world. Some of his material waited decades for study and preparation, and even his own long career was not enough to enable him to describe all that he collected — that task is still going on at the Museum. Because of space limitations, only a few of his finds have ever been displayed.

Following his retirement from the Museum, the Alberta Provincial Government invited his recommendations and assistance in the development of

a "Dinosaur Provincial Park" in the badlands. UNESCO has since designated the park as a World Heritage Site, a natural heritage area of outstanding universal value.

Always eager to share his discoveries and knowledge, Dr. Sternberg gave many popular lectures at the Museum, and in

1978 his life and work were the subject of a film featured on the prestigious CBC series "The Nature of Things". During an interview for the film, he said with characteristic modesty: "I enjoyed every minute of my work. If I could do it all over again I would be a dinosaur expert".



Dr. C.M. Sternberg and one of his major "finds", *Daspletosaurus*.



An Intelligent Dinosaur?

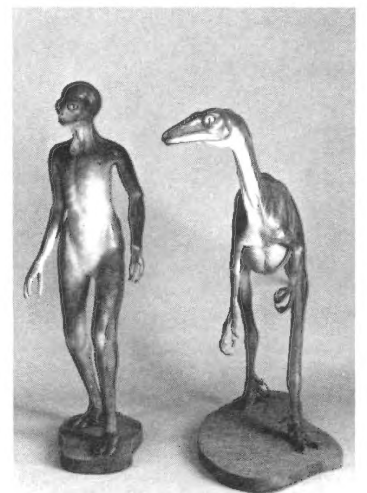
than most other dinosaurs. It may have been as intelligent as the most advanced mammals of the time.

Dr. Russell then began wondering how *Stenonychosaurus* would have evolved if it had survived the mass extinctions that killed off about half the lifeforms on Earth some 63 million years ago, and which eventually led to the dominance of mammals. Its physical features, combined with an extraordinary brain capacity, were similar to the basic ingredients of success that later allowed the evolution of mankind. Studies have shown that a trend towards bigger brains was clearly established before the extinction of the dinosaurs. What if this process had continued?

Dr. Russell speculated that given such circumstances, a species such as *Stenonychosaurus* might eventually have reached a brain capacity similar to ours. He then began working with Ron Séguin on a second model, a "restoration" of a hypothetical creature which they termed a "dinosauroid". By drawing from both *Stenonychosaurus*'s reptilian characteristics and the potential evolution of a relatively intelligent bipedal animal with eyes directed towards the front of the head and a rudimentary "hand", they

created a being that might have someday inherited the Earth; a snake-eyed humanoid with hands capable of shaping wood into clubs.

Dr. Russell's dinosauroid is an educated guess based upon *Stenonychosaurus*'s evolutionary potential as compared to the small, rodent-like mammals of the late Cretaceous. Could guess have become reality if the mass extinctions of 63 million years ago had not happened?



The dinosauroid and his "ancestor", *Stenonychosaurus inequalis*.

PROGRAMS AND ACTIVITIES

September / December 1983

A Dinosaur Extravaganza

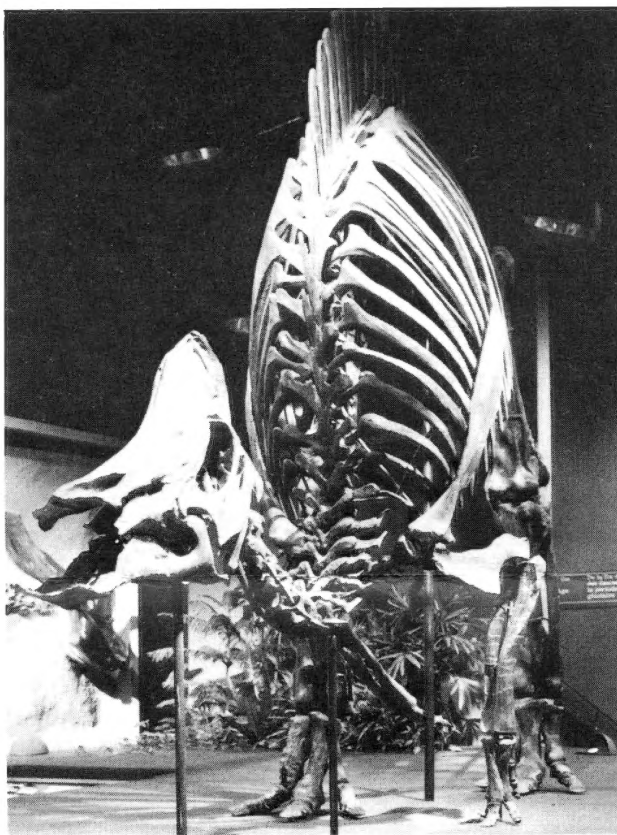
Discover the past
at the Museum

Canada has some of the finest dinosaur fossils in the world. The Museum's fall and winter activities celebrate this invaluable aspect of our natural heritage.

In *A Vanished World*, the striking artistic reconstructions of local artist Eleanor M. Kish, originally commissioned for a Museum publication on the dinosaurs of Western Canada, are embellished by some of her current work and a display of dinosaur models. *Dinosaurs, Mammoths and Cavemen: The Art of Charles R. Knight* features the work of an artist who for nearly half a century gave the modern world his visions of ancient animals and men and who is most responsible for the way we "see" dinosaurs and prehistoric times today. *A Vanished World* is on view from September 15 through November 13, and *Dinosaurs, Mammoths and Cavemen* from October 16 to February 28, 1984.

To complement your discovery of the past, an **excavation site** accompanying the *A Vanished World* exhibit will show you the techniques used to collect fossils in the Alberta "badlands" circa 1915 and our paleontologists will demonstrate the work that they do (dates and times of Museum events are listed in the calendar below). Visitors to *Dinosaurs, Mammoths and Cavemen* can also make their own **fossil plant rubbings** at their convenience.

There is also a **slide talk** as part of our "Dinosaur Extravaganza": Dr. Dale A. Russell of the Museum's Paleobiology Division will speak about his research on the extinction of the dinosaurs and the evolution of intelligence, two areas of paleontology in which he has acquired an international reputation. Simultaneous French translation is provided as well as **interpretation for**



the hearing impaired. TTY information: 593-6992. Other activities for adults include **behind the scenes tours** demonstrating how our paleontological displays are developed.

For our younger visitors, there will be **digging for dinosaurs workshops** in which children can search in a sand "dig" and find dinosaur bones, which they can then help assemble into a skeleton. The whole family can come to our **casting workshops** and participate in making plaster casts of dinosaur moulds.

There are also **film presentations** for the family, each showing a selection of films in English and French that deal with paleontology and anthropology. Film programs and complementary information are available at the time of the presentations or you can call our "dinosaur hot line" at 996-3102 if you wish to know the titles in advance.

Our other fall and winter activities include two of the popular **Audubon Wildlife Films** presentations with live commentary by the filmmakers. **Interpretation for the hearing impaired is provided.** And as part of our Yuletide festivities, there will be **Origami demonstrations** held in conjunction with the casting workshops. Participants in the workshops can also learn about this Japanese art of paper folding and observe our Christmas tree being decorated with folded dinosaurs!

Admission at the Museum is always free. Join us!

Beginning September 6, our doors are open six days a week, from 10 a.m. to 5 p.m. Closed Mondays, except for Thanksgiving. Please note that the Museum will open its doors at 7:30 p.m. to allow access to the slide talk.

C A L E N D A R • O F • E V E N T S

SEPTEMBER							SEPTEMBER		OCTOBER		16 2 p.m.		13	
S	M	T	W	T	F	S	15		1 & 2 1:30 p.m.		Audubon Wildlife Film: <i>The Golden Sea of Cortez</i>		end of <i>A Vanished World</i>	
					1	2	opening of <i>A Vanished World</i>		bilingual films		in English.		27 2 p.m.	
4	5	6	7	8	9	10	Temporary Exhibits Gallery (3rd floor west)		Auditorium (1st floor)		Int. for hearing impaired		Audubon Wildlife Film: <i>Hidden World of the Big Cypress Swamp</i>	
11	12	13	14	15	16	17	17 & 18 1:30 p.m.		1:30 p.m. to 4:30 p.m.		Auditorium (1st floor)		in English.	
18	19	20	21	22	23	24	bilingual films		bilingual workshops:		29 1:30 p.m.		Int. for hearing impaired	
25	26	27	28	29	30		Auditorium (1st floor)		<i>Digging for Dinosaurs</i>		tour: <i>Dans les coulisses</i>		Auditorium (1st floor)	
OCTOBER							18 & 25 1:30 p.m.		2, 16, & 23		NOVEMBER		DECEMBER	
S	M	T	W	T	F	S	to 4:30 p.m.		bilingual demonstrations:		6 1:30 p.m. to 4:30 p.m.		10 & 11 1:30 p.m.	
						1	bilingual workshops:		<i>Excavation Site</i>		bilingual demonstrations:		to 4:30 p.m.	
2	3	4	5	6	7	8	Activity Center (basement)		Temporary Exhibits Gallery (3rd floor west)		<i>Excavation Site</i>		Casting	
9	10	11	12	13	14	15	18 & 25 1:30 p.m.		15 1:30 p.m.		Temporary Exhibits Gallery (3rd floor west)		Salon (3rd floor)	
16	17	18	19	20	21	22	to 4:30 p.m.		tour:		12 1:30 p.m.		10 & 11 1:30 p.m.	
23	24	25	26	27	28	29	bilingual workshops:		<i>Behind the Scenes</i>		tour:		to 4:30 p.m.	
30	31						<i>Digging for Dinosaurs</i>		in English		<i>Behind the Scenes</i>		bilingual demonstrations:	
NOVEMBER							Temporary Exhibits Gallery (3rd floor west)		Auditorium (1st floor)		in English		<i>Origami</i>	
S	M	T	W	T	F	S	18 & 25 1:30 p.m.		16		Auditorium (1st floor)		Salon (3rd floor)	
						1	to 4:30 p.m.		opening of				26 through 29 1:30 p.m.	
6	7	8	9	10	11	12	bilingual demonstrations:		<i>Dinosaurs, Mammoths and Cavemen</i>				bilingual films	
13	14	15	16	17	18	19	<i>Excavation Site</i>		Temporary Exhibits Gallery (3rd floor east)				Auditorium (1st floor)	
20	21	22	23	24	25	26	Temporary Exhibits Gallery (3rd floor west)							
27	28	29	30				28 8 p.m.							
DECEMBER							slide talk:							
S	M	T	W	T	F	S	Dr. D.A. Russell							
					1	2	in English. Sim. French trans.							
4	5	6	7	8	9	10	& int. for hearing impaired							
11	12	13	14	15	16	17	Auditorium (1st floor)							
18	19	20	21	22	23	24								
25	26	27	28	29	30	31								



National Museums
of Canada

Musées nationaux
du Canada